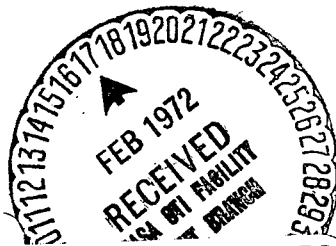


FIRST ESRO CONTRACTS FOR A EUROPEAN EARTH
RESOURCE REMOTE DETECTION PROGRAM

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FIRST ESRO CONTRACTS FOR A EUROPEAN
EARTH RESOURCE REMOTE DETECTION PROGRAM

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ABSTRACT. ESRO has awarded four contracts for the establishment of a European experimental remote detection program that can be undertaken using airborne resources. Before beginning such a program it will be necessary to ascertain the usable means and their capabilities. Two of the contractors will study the possible uses of radiotelemetry with millimetric waves and side-looking radar, and the other two contractors will conduct an investigation to find an aircraft suitable for installation of remote detection equipment.

After approximately two years of interest, practically during the same /30* period as the CNES [Centre National d'Etudes Spatiales, National Center for Space Studies]¹, in the capabilities for remote detection of earth resources, ESRO [European Space Research Organization] has just, at month's end December 1971, awarded its first four study contracts. They form the first stage leading to the setting up of a European experimental remote detection program which, at best, could be undertaken a year from now using airborne resources. Towards 1975 it would then be possible to specify an operational program using the satellite this time as a detection platform.²

The European tour carried out at the beginning of 1970 by the man in charge of this ESRO program, Régis Tessier, revealed two facts (furthermore, already known by French specialists): on one hand, remote detection involves disciplines different to such an extent that the problem of data handling and potential user training becomes a factor and, on the other hand, it requires perfected and specialized equipments which undoubtedly already exist although generally only for military uses, whence a problem of availability.

¹ Cf. Air et Cosmos, Nos. 320, 344, and 405.

² This goal explains why ESRO, the space organization, plans on using aeronautical resources (on a provisional basis).

* Numbers in the margin indicate pagination in the foreign text.

Before undertaking a viable and coherent experimental program on the European scale, which has yet to be done, let this be stated, it therefore appears necessary to inventory the utilizable resources and their capabilities, followed by wide dissemination of the results acquired for the purpose of making easier the listing of potential users. This is specifically the goal sought after by ESRO with the four contracts which it has just awarded. Two of the latter concern the study of the possible utilizations of the radiometer with millimetric waves and of side-looking radar and two others feature investigation for an aircraft suitable for installation of remote detection equipment.

Furthermore, another contract will probably be awarded by ESRO during the year 1972 for similarly studying the possible utilizations of the multispectral scanner, an apparatus which is quite advantageous for remote detection since it allows the simultaneous recordings of radiation from a same surface in several wavelengths of the spectrum (visible and infrared), hence the procurement of more numerous and complementary data, than with a monospectral scanner. Unfortunately, these equipments are both expensive and difficult to operate.

Radiometer and Side-looking Radar

Of the two contracts concerning the remote detection apparatuses, each of which accounts for approximately \$30,000, one was awarded to the Swedish firm SAAB-SCANIA for the millimetric wave radiometer (this firm has already carried out a similar study for the Swedish Government) and the other was given to the British firm EASAMS for the side-looking radar. Both study reports should be submitted to ESRO in May and July respectively.

In both cases, the manufacturer, assisted by a group of contract experts in earth sciences (geologists, geographers, geophysicist, etc.), will have to make a census of existing apparatuses³, study their operating principle and the results

³There are relatively few of them in Europe. There are probably two millimetric radiometers, one in France (Thomson-CSF) and the other in Germany (DFVLR). As far as side-looking radar is concerned, one was developed in Great Britain and two others are being developed in Germany (under an American license) and in the Netherlands (Philips), plus one prototype which has been produced in France by the STTA.

supplied by them, identify the fields of applications to remote detection and, finally, make recommendations for a European remote detection program.

Find and Equip an Aircraft for Remote Detection

The platform on which the various apparatuses for remote detection will be installed, and which will be used for the various schedules of the European experimental program, will be an aircraft for the early stages. It is quite clear, however, as is the case in the USA (NASA program), and ESRO adheres to the same philosophy, that involved at this point is no more than a provisional stage allowing development of the technology and equipment in a way which is more economical than with satellites. The latter are, in reality, quite expensive and do not lend themselves with the same flexibility as a ground-based vehicle to far-reaching and frequent modifications.

It is clearly not a question of ESRO purchasing the aircraft, nor the sensors either, but rather a question of obtaining its free availability during the time required for carrying out the experimental program, estimated at the present time to be approximately three years (from 1972 to 1975 under ideal conditions).

Among the 50 firms receiving requests for proposals and the 14 which replied, ESRO has selected two companies to which the same contract was awarded (approximately \$60,000). These were the French company SODETEG (Société d'Etudes Techniques et d'Entreprises Générales, Technical Research and General Enterprises Company), on one hand, associated with the National Geographic Institute (Institut Géographique National) and with the Office of Mining and Geological Research (Bureau de Recherches Géologiques et Minières) both of which have been used in the French program and, on the other hand, again the EASAMS firm (Great Britain) associated for the occasion at Fairey (Great Britain).

Each one of the contractors will have to specify the equipment of the aircraft, the experimental program, operational implications, the most suitable aircraft type (the Brequet "Atlantic," for example, would be very well suited), the method of handling the apparatus and, finally, the legal aspects of remote detection operations carried out in several European countries in order to offer the latter all guarantees that neither espionage nor military air reconnaissance was involved. The study reports will be submitted to ESRO at the end of the first quarter 1972.